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AUTHOR Frisbie, Richard D.
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ABSTRACT

Needs assessment almost always focuses on the assessment of change, change from the real to the ideal, present to future, actual to expected, and so on. As a result, most definitions of need can be represented by a mathematical-style change formula. However, most presentations of the concept of change do not completely represent the complexity of the actual needs assessment process. In contrast, field analysis is the process through which changes in a system and its environment are clearly described, so that these changes can be judged to represent either needs, opportunities, or costs. Some of the steps in conducting a field analysis include: defining the field, determining the change to be considered, characterizing the change, and appraising the change. In this view, needs assessment is a subject of field analysis.
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Field Analysis: Something More Than Needs Assessment

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by

Richard D. Frisbie
The Evaluation Center
College of Education
Western Michigan University

Presented at the
Evaluation Network Annual Conference
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ABSTRACT

In order to help identify social concerns, facilitate planning, and provide a sound rationale for the allocation of scarce resources, a number of people have contributed to the conceptual and applied development of an evaluation process called needs assessment. This process almost always focuses on the assessment of change, change from the real to the ideal, present to future, actual to expected, and so on. As a result, most definitions of need can be represented by a mathematical - style change formula. However, most presentations of the concept of change do not completely represent the complexity of the actual needs assessment process. Consequently, this paper is intended to provide some conceptual clarity to the process of needs assessment. A brief discussion related to the practice of needs assessment is also provided, but this is intended to serve more as a framework than as a prescription for practice.

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In order to help identify social concerns, facilitate planning, and provide a sound rationale for the allocation of scarce resources, a number of people have contributed to the conceptual and applied development of an evaluation process called needs assessment. This process almost always focuses on the assessment of change, change from the real to the ideal, present to future, actual to expected, and so on. As a result, most definitions of need can be represented by a mathematical - style change formula. However, most presentations of the concept of change do not completely represent the complexity of the actual needs assessment process. Consequently, this paper is intended to provide some conceptual clarity to the process of needs assessment. A brief discussion related to the practice of needs assessment is also provided, but this is intended to serve more as a framework than as a prescription for practice.

More specifically, this paper is used to discuss some problems with using a popular definition of need and two other conditions to test if a given situation represents a "genuine" need. Some possible remedies to these problems are then suggested. Part I of this paper covers needs assessment and the problems I consider to be present in this way to define need. It is used to discuss a test for genuine need, describe a way to apply the test to a comprehensive set of hypothetical cases, list the major problems with the test that become evident through this application, and present some basic responses to those problems.

Part II is then used to discuss field analysis as an application of the solutions. It involves a definition of field analysis, a comparison of field analysis to some related concepts, and a brief presentation of what conducting field analysis may involve.

Part I. Needs Assessment: Some Definitional Problems

The discussion to follow in Part I is based on a series of mathematical-style definitions of what is, in effect, change. It is also heavily dependent on a set of systematically generated graphic representations of different kinds of change. The purpose of this somewhat tedious activity is to set up a comprehensive description of change in an abstract sense so that a corresponding conceptual framework for assessing this change may then be developed. The following sections describe that process.

A TEST FOR GENUINE NEED

A popular definition of need (Roth, 1977) can be written in the form:

$$N_c = T - A$$

where

N_c = a need candidate

T = some target state, and

A = some corresponding actual state.

In addition, Scriven and Roth (1977) suggest two criteria a need candidate, Nc, must meet before it can qualify as a genuine need:

1. with the Nc, a subject derives some otherwise unrealized benefit, and
2. without the Nc, the subject is in an unsatisfactory state.

In follow-up, Roth (1977) contends that both definitions must be taken together in order to obtain a satisfactory definition of need. Lincoln and Guba (1981) agree, and state that these formulations constitute necessary and sufficient conditions for the identification of a genuine need. They also suggest that in order to focus the process of needs assessment, the first task should be to identify the domains of interest for the study. Using this domain-focused approach and combining the two previous definitions, a summary of the test for a genuine need can be written as follows:

$$1. Nc = Dt - Da$$

where

Nc = a need candidate

Dt = some target state within a specified domain, and

Da = some corresponding actual state within that specified domain; and

2. with the Nc, a subject receives some otherwise unrealized benefit; and

3. without the Nc, the subject is in an unsatisfactory state.

APPLYING THE TEST

DEFINING A GENERALIZED CHANGE FORMULA

One way to test the adequacy of these simultaneous conditions to be met by a genuine need would be to a) generate an exhaustive list of hypothetical cases which include the various possible combinations of events that can occur, and b) identify the cases which meet all of the stated criteria. This can be accomplished graphically, as in Figure 1, by a) adjusting the need candidate formula to represent a general case, b) applying certain conventions to represent key elements in each of the three conditions, c) constructing graphs with all possible combinations of these variables, and d) identifying the cases which simultaneously meet the three proposed necessary and sufficient characteristics of a genuine need. A judgment can then be made concerning how well these criteria "sorted" the various cases. Since the need candidate formula, $Nc=Dt-Da$, is a discrepancy-style equation, it can also be thought of as a special case of the generalized change formula:

$$\Delta D = D2 - D1$$

where

ΔD = a change within a specified domain

$D2$ = state 2 within a specified domain, and

$D1$ = state 1 within a specified domain.

OPERATIONALIZING THE CONDITIONS

When $D2=Dt$ and $D1=Da$, then $\Delta D=Dt-Da$ and, substituting, $\Delta D=Nc$. In other words, only when a comparison is made between an

identified target state and some other state does that change constitute a need candidate. This is the first condition to be met for the test of a genuine need. Graphically, D1 will be represented by the left point on figures depicting a hypothetical case, D2 will be represented by the right point, and the identified target state, T, will be represented by a solid horizontal line passing through the figure. When T passes through (intersects) D2, the first condition for the test of a genuine need has been met.

The second condition, "with the need candidate, (or change from D1 to D2) a subject receives some otherwise unrealized benefit," will be represented by a positive slope of the line between D1 and D2. This is accomplished by having the scaling of the vertical axis represent an appraisal (judgment) of the benefits derived from the various characterized (described) states. The measurement is considered to be on at least an ordinal scale with higher values above lower ones. The horizontal axis represents a characterization of states D1 and D2. The scaling can be nominal or higher and the differences between D1 and D2 are constant across cases for this exercise, but that would not necessary in real situations.

The third condition, "without the need candidate (or change from D1 to D2) the subject is in an unsatisfactory state," will be represented by the location of the line, D1D2, in relation to a dotted horizontal line passing through the figure. This dotted line represents an ambiguous "phase shift" between an appraisal as acceptable and one as unacceptable on the vertical axis. Thus, whenever D1D2 is below this dotted horizontal line, the

third condition will be considered to have been met, since an "unacceptable appraisal" will be the operational definition of an "unsatisfactory state," and "without Nc" (or change from D1 to D2) is represented by that line.

Figure 1 is used to represent a hypothetical case using the graphic conventions just discussed. When the three conditions are applied, it can be seen that D2 and T do not intersect, the slope of the line between D1 and D2 is positive, and D1D2 is below the dotted line for part of its length and above it for the rest. As a result, the case is ruled to not represent a genuine need under the conditions specified. This is clearly so since the first condition has not been met. It is also true that the third condition has only been met for a portion of the appraised change from D1 to D2. This case has been presented in Figure 1 since it is a good example of some basic problems with the conditions to test for a genuine need. These and other problems will be discussed in more detail later on.

GENERATING THE HYPOTHETICAL CASES

An exhaustive list of hypothetical cases can be generated by systematically varying D1, D2, and T along the appraisal (vertical) scale in an "absolute" sense and also "relative" to each other. absolute appraisals have been presented at three levels: beneficial (+); neither markedly beneficial nor detrimental - neutral (0); and detrimental (-). These appraisals are independent of each other. Relative appraisals were made considering D1, D2, and T simultaneously so that these comparisons are logically consistent. These possible comparisons

made the appraised value of one state either greater than (>), less than (<), or equal to (=) another state. Possible changes of D1 and D2 along the characterization (horizontal) scale have been held constant for the sake of simplicity.

Table 1 is used to list the possible combinations of absolute appraisals (27) and relative appraisals (13). When these two lists of combinations are simultaneously considered, they can be used to generate a total of seventy-five unique and logically consistent hypothetical cases. These cases can then be tested against the conditions said to be necessary and sufficient for the status of a genuine need. These cases and their status in terms of the three conditions are presented in Figure 2.

RESULTS OF THE TEST

A review of Figure 2 shows that only two of the cases qualify as representing a genuine need. These cases, 9D and 10D, clearly meet all three conditions. However, there are a number of other cases for which it would seem more prudent to consider the test for genuine to be flawed rather than to say they do not represent, at least in part, genuine need. A way to resolve this problem will be discussed shortly.

PROBLEMS WITH THE TEST

There seem to be four basic problems with the test for genuine need as it has been described here. First, the requirement for a designated target state, T, to coincide with another state precludes a number of cases from representing a genuine need when they would otherwise do so. Since target

states are frequently arbitrary, ungrounded, subject to political manipulation, not necessary for the specification of change, and often of no help in determining how much of that change is "needed," the use of them as part of a condition to be met in a test for genuine need does not seem to be warranted. Target states are probably best thought of as simply useful planning tools.

A second problem is that the formula, $Nc=Dt-Da$, provides part of a definition of need, but it would be awkward to use with other types of important change that are represented in Figure 2. This could be remedied with a modification of the formula.

Another problem, also related to the $Nc=Dt-Da$ formula, is that the specification of domains provides needed focus, but it may also distract people from other important but non-domain factors. this problem also requires modification of the basic formula, but both of the above difficulties can be addressed in one revised formula.

The fourth problem is related to the third condition in the test for a genuine need, "without the need candidate, the subject is in an unsatisfactory state." The difficulty with this condition is that for certain changes, it not simply "met" or "not met." Instead, the condition is met for part of the change and not met for the other part. This problem exists whenever one state is appraised to be acceptable and the other to be unacceptable. The situation could be remedied with a convoluted reworking of the condition but, in this case, it is probably better to suggest some implications for practice instead.

RESPONSES TO THE PROBLEMS

DEFINITION OF NEED AND RELATED TERMS

One response to the first two problems is to define need and some other terms in a way that is consistent with coherent groupings of the hypothetical cases that have been generated. As previously noted, the exclusions required by the first condition of the test for genuine need do not appear to be warranted. Because of this, it has been dropped as a condition. As a result, the seventy-five cases may be reduced to a total of thirteen unique situations that are represented in Figure 3. The other two conditions remain the same in principle but have been paraphrased to help show the relationship of need to other concepts.

Of the thirteen cases, ten represent a change in appraisal from one state to another, while three (cases 6, 7, and 8) represent no change and are not included under any of the following definitions:

- * A need for a characterized change is said to exist if that change is appraised a) to be beneficial and b) to diminish the severity of an unacceptable condition. (This includes cases 9, 10, and the lower portion of case 11.)
- * An opportunity is said to be presented by a characterized change if that change is appraised a) to be beneficial and b) to enhance an acceptable condition. (This includes the upper portion of case 11 and also cases 12 and 13.)

* A cost is said to accompany a characterized change if that change is appraised to be detrimental. This detrimental change may also be appraised to either a) diminish an acceptable condition - an acceptable cost, (This includes the upper portion of case 3 and also cases 4 and 5.) or b) increase the severity of an unacceptable condition - an unacceptable cost. (This includes cases 1, 2, and the lower portion of case 3.)

One popular way to categorize changes is to make a distinction between those which are "needed" and those which are "wanted." The distinguishing characteristic between the two types of changes is that without a needed change, the subject is in an unsatisfactory state; while without a wanted change, the subject would still be in a satisfactory state. I chose to write a complementary definition using "opportunity" rather than "want" to get away from the implication, stated or otherwise, that this type of beneficial change is somehow inherently "self-indulgent."

As far as detrimental change goes, it can always be said to constitute a cost. For the convenience of distinction, costs which are incurred under acceptable conditions have been further designated as "acceptable costs," while those incurred under unacceptable conditions have been further designated as "unacceptable costs."

Returning to the three cases which represent no appraised change from one state to another, this seems most likely to occur in one of two basic ways. The first way would be when the

criteria for appraisal are not sensitive enough to detect any described changes in the states, large or small. The second way would be when the criteria for judging states, public or private, are themselves changed, so that there is no net change in appraisal.

EXPANDING THE NEED CANDIDATE FORMULA

In order to address the problem of attempting to use the need candidate formula to describe changes related to such things as opportunities and costs, as well as, not lose track of important factors that have not been specified as an evaluation domain of interest, it is recommended that an expanded change formula be used to classify the major types of changes that can take place. A wholistic approach to the above problem is to take a systems perspective. Along this line, a particularly useful concept which can be borrowed from general systems theory is that of the field. The field can be thought of as a unit of analysis which simultaneously considers both the environment and the system or systems contained within it (Sutherland, 1975). When Lincoln's and Guba's notion of an evaluation domain is combined with the field concept, a Venn diagram can be used to represent the resulting relationships. This Venn diagram is presented in Figure 4.

In this stylized diagram, the entire field is represented by the encompassing rectangle. One system is represented to be in the field by the circle. The intersecting oval is used to represent one domain of interest. In addition, the portion of the field that is outside of the circle represents the system's

environment. Because it is quite likely that a domain will have both system and environment features, it is useful to think of the field as having four basic components. These components include: S_d , a specified domain within a system; $\bar{S}_d$, the remainder of the system; E_d , a specified domain within the environment; and $\bar{E}_d$; the remainder of the environment.

Now that the basic components of the field have been described, the next step is to arrange them into a format similar to the need candidate equation. This can be accomplished by writing another generalized change formula. The difference will be that instead of only considering the change within a specified domain, this time the changes encompass the entire field. This generalized change formula for the field can be written:

$$\Delta F = \Delta S_d + \Delta \bar{S}_d + \Delta E_d + \Delta \bar{E}_d$$

where

ΔF = change in the field

ΔS_d = change in a specified domain within a system

$\Delta \bar{S}_d$ = change in the remainder of the system

ΔE_d = change in a specified domain within the environment,

and

$\Delta \bar{E}_d$ = change in the remainder of the environment.

The advantages of this formulation over the popular need candidate equation are that it loses nothing from the popular formula, it can accommodate the representation of appraised changes other than those which meet the conditions of a genuine need, and it can also alert evaluators to the total set of changes that are taking place over any period of time.

A brief discussion of how this field orientation can be used will probably be helpful here. Let's take the example of a large oil company doing strip mining for shale oil in a Western state. In this example, we'll call the oil company (OC) the system and everything else that interacts with OC the environment (ENV). We'll also identify one domain of interest, financial profits or costs. Let's say that OC hits it rich and winds up making a tremendous profit out of this operation. This characterized change within the specified domain of the system also turns out to be appraised as very good by OC. Because of all this extra money lying around, OC now has the opportunity to buy that cute little credit card company it's always wanted to have in its back pocket. This is also appraised to be very good by OC. On the other hand, it turns out that in order for OC to have the capital resources to begin the strip mining, old Uncle Sam was there to subsidize a big chunk of the bill through tax breaks and deregulation of oil prices. This amounts to a financial cost to the ENV. You and I tend to appraise this as very bad when we pay our taxes or drive away from the gas pump. In addition, tremendous ecological damage has been done to the natural countryside as a result of this type of mining. Many people would also tend to consider this situation to be very bad, particularly the ones who live in the region.

So, where does that all leave us in terms of the total set of characterized changes in the field and the appraisal of this total set of changes? Obviously, even in this cryptic example, there is no simple answer, but that is exactly the point. This formulation is only a way to help us keep that in mind.

FOCUSING ON THE DIFFERENCE BETWEEN ACCEPTABLE AND UNACCEPTABLE CONDITIONS

The fourth problem with the test for genuine need is that it does not clearly emphasize how a beneficial change could shift from one that is "needed" to one which is merely "wanted" or provides an "opportunity." In light of the previous discussions, this shift takes place as changes in appraisals of conditions shift from being unacceptable to acceptable. Recall that if beneficial changes occur when conditions are said to be unacceptable, this has been defined as needed change; while beneficial changes that occur when conditions are considered to be acceptable have been defined as opportunity. In many ways, this is the kind of "phase shift" that people attempt to identify and use as a cut-off score when they use competency-based testing to make the decision about who will graduate from high school and who will not. Unfortunately, we all have some idea about how difficult it is to perform a task like this in a consistent and just way. PASS, a standardized, Normalization-based program evaluation instrument is another example in which much effort has been put into distinguishing between acceptable and unacceptable conditions from a clearly specified value perspective (Wolfensberger and Glenn, 1975).

The point that I would like to make here is that if we truly want to make a distinction between needed change and opportunity, and if we truly want to make differential decisions based on these distinctions, then we are going to have to put a very high level of effort into clarifying exactly what it is about a given condition that makes us judge it to be either acceptable or

unacceptable. In addition to this, we are also going to have to pay particular attention to that fuzzy area between acceptable and unacceptable appraisals. Whenever possible, we are going to have to concentrate on narrowing this "band of uncertainty" so that we have a very clear understanding of why we tamper with people's lives the way we do. But even as we do this, we will also have to guard against trying to turn inherently complex or controversial issues into overly simplistic, black and white decision rules.

Part II. Field Analysis: Applying The Solutions

DEFINING FIELD ANALYSIS

Now that some problems I consider to be present in the test for genuine need have been described, and some solutions have been proposed, I would like to move on to what I consider to be a reasonable approach which takes these solutions into account. This approach is based on the perspective that the quality of "need, "opportunity," or "cost" is not an inherent characteristic of a particular condition. Instead, this attached quality is a function of the field within which that condition is described and the value structure against which it has been judged. I also take a dynamic perspective in that this approach focuses on real or potential change, rather than static situations. With these perspectives and the solutions to the test for genuine need in mind, a definition of field analysis can be written as follows:

- * Field analysis is the process through which changes in a system and its environment are clearly described, so that these changes can then be judged to represent either needs, opportunities, or costs.

COMPARING FIELD ANALYSIS TO OTHER CONCEPTS

NEEDS ASSESSMENT

Obviously, there is a close relationship between the concepts of needs assessment and field analysis. By definition, needs assessment is a subset of field analysis. In practice, what has often been called needs assessment may be virtually indistinguishable from field analysis, since it often goes beyond assessing only "needs." However, when the popular test for a genuine need is applied, these studies could be considered "sloppy" or "beyond their scope." Field analysis gets around these problems by specifically incorporating other types of value-defined change.

CONTEXT EVALUATION

Stufflebeam, et al. (1971) state that context evaluation, "is systematic and macroanalytic; its purpose is to provide a rationale for determination of objectives for the system. It defines the environment, describes the desired and actual conditions pertaining to the environment, identifies unmet needs and unused opportunities, and diagnoses the problems that prevent needs from being met and opportunities from being used," (p.353). Conceptually, it seems that context evaluation and field analysis are even more closely related. The distinguishing characteristic

for the field analysis formulation is that the basic components of the field and definitions of basic changes within and between these components have been more clearly specified.

OBJECT/CONTEXT OF THE EVALUATION

Each of the four components of the field must be either part of the object or context of the evaluation. In practice, however, one or more of these components may often have been left out. Probably the most troublesome of such omissions in the long run is when the object is thought of as a set of specified domains within the system (or organization) and the context is thought of as the remainder of the organization, ignoring the environment completely.

My suggestion would be to think of the object of the evaluation as the set of specified domains within the system and its environment. The context of the evaluation would then be the remainder of the system and its environment.

MERIT AND WORTH

Lincoln and Guba (1979) distinguish between two different ways to assign value to an entity by the use of the terms, merit and worth. They describe merit as, "an intrinsic property of the entity being evaluated, [it] is determined in one of two ways: by assessing the degree to which the entity conforms to certain standards upon which a relevant professional group or group of experts agree, which might be called absolute merit evaluation, or by comparing the entity to other entities within the same class, which might be called comparative merit evaluation,"

(p.7). They then go on to describe worth as, "an extrinsic property of the entity being evaluated, [it] is determined by comparing the entity's impact or outcomes relative to some set of external requirements, e.g., the results of a needs assessment or a context evaluation," (p.8).

In addition, they suggest that the process of determining worth should depend on some minimal level of merit, as well as, contain other benefits whose definitions are tailored to each local setting. Based on its similarities to needs assessment and context evaluation, along with its ability to help provide focus to determining the unique characteristics of individual settings, field analysis would appear to be particularly useful for addressing questions of worth.

WEIGHT AND SUM

Almost any time you have to make a judgment about something, there are going to be a number of factors to consider, and you are going to have to decide how important each of these factors are in relation to each other. The field analysis formulation suggests that there should always be at least four of these factors. In practice, there will usually be many more, and, as Scriven states (1981), the process that you go through to do this can be very complex. The crux of the matter revolves around determining what is important from a wholistic point of view and then devising a method to analyze and judge the contributing components from that wholistic perspective. Scriven's article offers some practical advice in this area and the program evaluation instrument, PASS (Wolfensberger and Glenn, 1975), is an applied example.

The oil company example used earlier also helps illustrate the weight and sum problem. Taken individually, each of the four field components are relatively easy to be assigned "good" or "bad" ratings in terms of the perspectives described. On the other hand, taking the wholistic, field perspective, the final verdict will be completely dependent on the specifics of the weight and sum methods employed. The contribution of the field analysis formulation in this regard is that it helps focus this problem so that it will be more likely to be properly addressed.

CONDUCTING FIELD ANALYSIS

What I would like to do here is to briefly touch upon the major components of field analysis which have been presented in the previous sections. In short, field analysis involves the two basic activities of characterizing and appraising changes in the field. Some of the steps in this process will now be discussed.

DEFINING THE FIELD

One of the first things that needs to be done is to decide what it is that makes up the field and its various parts. In order to do this, it is necessary to define the system, its environment, and the domains of concern. Of course, it is also crucial to involve representatives of the major audiences so that their interests may be properly represented. This preliminary carving out of the territory will then provide the basis for the remainder of the work.

DETERMINING THE CHANGE TO BE CONSIDERED

Since field analysis is ultimately concerned with change, at least two states of the field have to be compared and these states have to be determined. These states may be real or hypothetical, targets to shoot for, or simply what is. This does not actually involve describing the change yet. What it does involve is establishing how you can tell when you have one of the states of interest. You might do this by selecting a time frame to do the field analysis, choosing an event to take place, like an in-service training workshop, constructing some general specifications for a product to be developed, and so on.

CHARACTERIZING THE CHANGE

This is the process of clearly describing the field as it changes from one state to another. It should also be kept in mind to have this description be as precise as is necessary to make the relevant appraisals later on. The premium here, however, is to focus on arriving at a relatively objective consensus, while keeping value-based interpretations to a minimum.

The scope of this description should be consistent with how the field has been previously defined in light of the change that is of interest. This means that the field should be described in at least two different states in terms of the system, environment, and domains that have already been defined. The nature of the actual change between states should then be clearly highlighted.

APPRAISING THE CHANGE

For this activity, values are at a premium. The purpose of this activity is to take any changes that have been described and label them as representing either needs, opportunities or costs. In order to do this, it is absolutely essential to identify the distinction between acceptable and unacceptable conditions. The reason this is so important is that it is the key element in distinguishing between beneficial changes which are either needed or present an opportunity. It is also used to make distinctions between detrimental changes which represent either acceptable costs ("blowing a good thing") or unacceptable costs ("going from bad to worse"). In order to accomplish this certainly difficult task of identifying the phase shift between acceptable and unacceptable conditions, it is important to emphasize diminishing the ambiguous range between acceptability / unacceptability, or more precisely, diminish the discrepancy between the effectively ambiguous range between acceptability / unacceptability (what we can know or agree on) and the inherently ambiguous range between acceptability / unacceptability (what we can't know or agree on).

The oil company example should also tip my hand that I consider the appraisal of the entire field, with all of its complexly interacting components, to be the most important appraisal of all. This means that overall appraisals may not necessarily be good or bad simply because one or a number of components are good or bad. It also suggests that all concerned parties need to be involved in the overall appraisals, and that many conflicts in values will likely need to be addressed.

From here, the process may go on to systematic planning or problem solving, or it might just stop with labeling changes as needs, opportunities, or costs. What happens at the next step is dependent on the purposes of the study, but if these basic steps are followed, it stands a good chance of being a sound one, regardless of where it goes from here.

Summary

This paper was used to present a way to determine the adequacy of the test for a genuine need. This test stipulates that three conditions must be simultaneously met in order for a situation to represent a genuine need. The first condition requires that some kind of a change between a target state and an actual state be present. The second condition requires that this change offer some otherwise unrealized benefit. The third condition requires that without this change, the subject should be in an unsatisfactory state.

Applying this test to a comprehensive set of hypothetical cases did not seem to adequately sort them into groups which did or did not represent genuine need. In addition, some other problems were evident. The first problem cited was that the use of a uniquely defined target state precluded some situations from being added to the group of cases which did represent genuine need, even though inclusion of the target state as a condition did not seem to have any compensating benefits related to defining genuine need. The second problem was that the need candidate formula did not accomodate other types of important changes represented by the cases. The third problem was that

this formula focused the areas of concern too narrowly. The fourth and final problem mentioned was that the test did not offer enough help in distinguishing different types of beneficial or detrimental changes.

Three solutions to these problems were then proposed. The first solution involved dropping the target state from the test for genuine need and defining need, opportunity, and cost in a way that is consistent with the remainder of the test and the set of hypothetical cases that were generated. The second solution involved presenting a substitute for the need candidate formula which can accomodate any of the above definitions and encompasses the whole of a system and its environment - the field. The third solution was to suggest the importance of focusing on the difference between an acceptable and unacceptable condition.

The second section was then used to discuss applying the solutions. It started with a definition of field analysis, the process through which changes in a system and its environment are clearly described, so that these changes can be judged to represent either needs, opportunities, or costs. It was then pointed out that needs assessment is a subset of field analysis. Context evaluation was considered to be virtually the same as field analysis, but the field analysis formula was thought to add some definitional precision to the process. Next, it was suggested that the object of an evaluation be thought of as the set of specified domains within a system and its environment; while the context of that evaluation should be thought of as the remainder of the system and its environment. Also, it was suggested that field analysis would be a good way to address

questions of what Lincoln and Guba call worth. The last comment on related concepts suggested that the field analysis formulation was very compatible with and a good organizer for weight and sum methods used to place values on complex entities with multiple components.

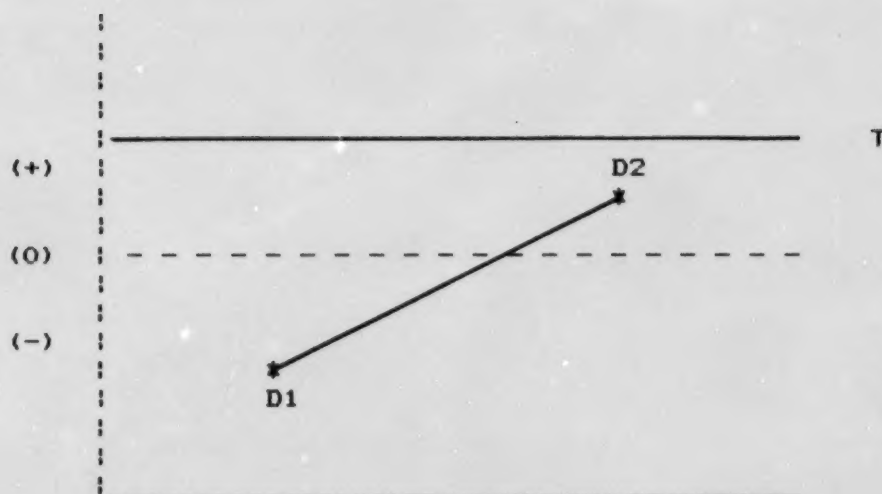
Finally, a very brief discussion of the basic steps in conducting field analysis was presented. These steps include defining the field, determining the changes to be considered, characterizing the change, and appraising the change. Four key elements in this process include the system, its environment, the domains of interest, and the phase shift between acceptable and unacceptable conditions. It was then suggested that field analysis could be thought of as an end in itself or as a springboard to further planning or problem solving activities.

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CHARACTERIZED STATES OF D1 AND D2

Condition 1: T intersects D2?	NO
Condition 2: Slope positive?	YES
Condition 3: D1D2 below 0?	YES/NO
Therefore, genuine need?	NO

Figure 1. Example of a hypothetical case tested to determine if it represents a "genuine need."

Table 1

Hypothetical Case Generation Lists

Absolute * Appraisals				Relative ** Appraisals			
	D1	D2	T		D1:D2	T:D1	T:D2
1	-	-	-	A	>	>	>
2	-	-	0	B	>	=	>
3	-	-	+	C	>	<	>
4	-	0	-	D	>	<	=
5	-	0	0	E	>	<	<
6	-	0	+	F	=	>	>
7	-	+	-	G	=	=	=
8	-	+	0	H	=	<	<
9	-	+	+	I	<	>	>
10	0	-	-	J	<	>	=
11	0	-	0	K	<	>	<
12	0	-	+	L	<	=	<
13	0	0	-	M	<	<	<
14	0	0	0				
15	0	0	+				
16	0	+	-				
17	0	+	0				
18	0	+	+				
19	+	-	-				
20	+	-	0				
21	+	-	+				
22	+	0	-				
23	+	0	0				
24	+	0	+				
25	+	+	-				
26	+	+	0				
27	+	+	+				

* Absolute Key

(-): Detrimental Appraisal

(0): Neutral Appraisal

(+): Beneficial Appraisal

** Relative Key

(>): More Beneficial Than

(=): Equally Beneficial As

(<): Less Beneficial Than

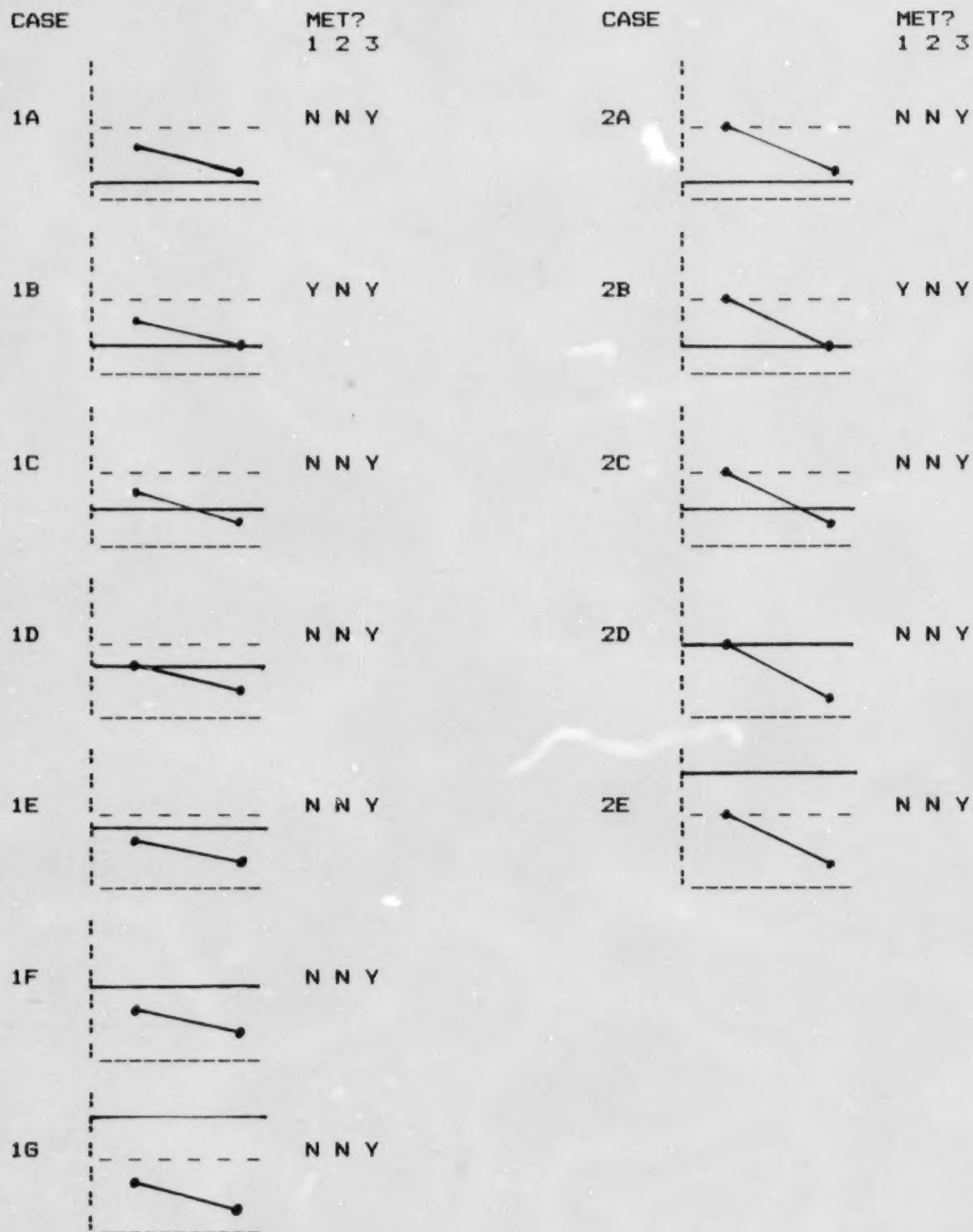


Figure 2. The test for genuine need applied to seventy-five cases. The format for each case is the same as in Figure 1.

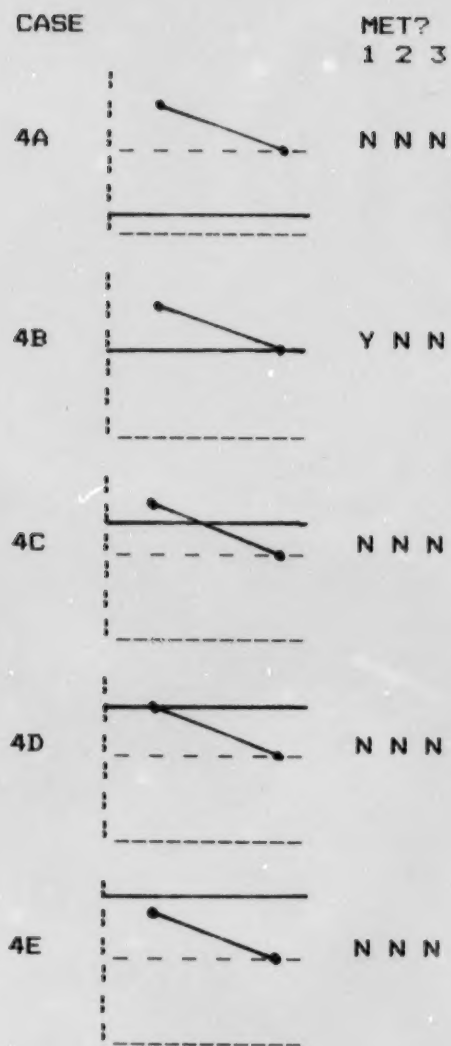
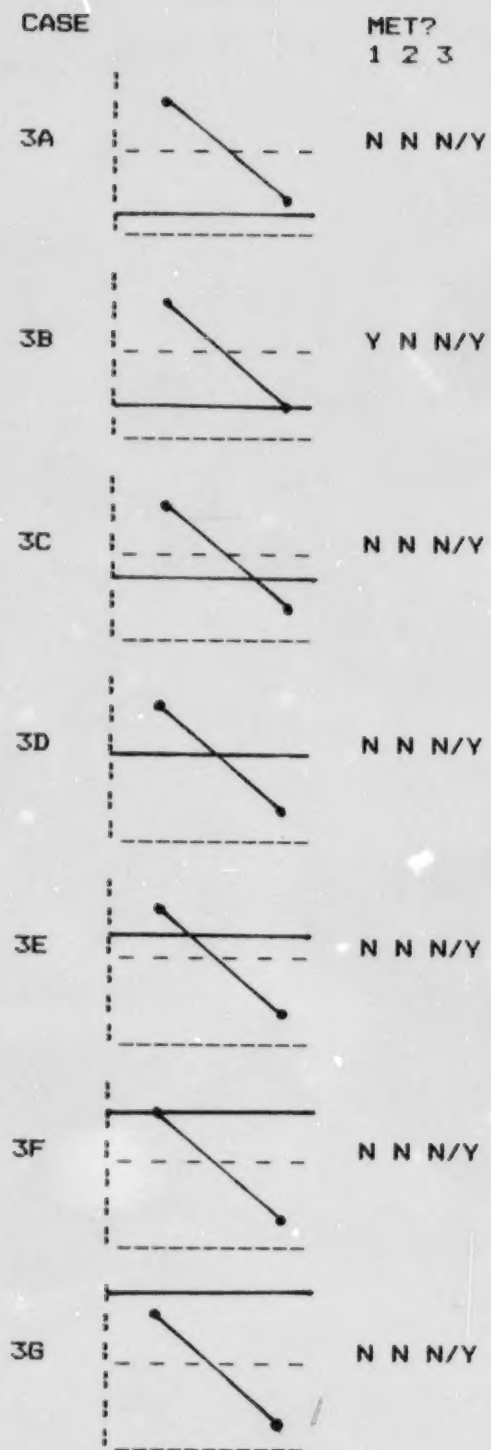


Figure 2. (Continued)

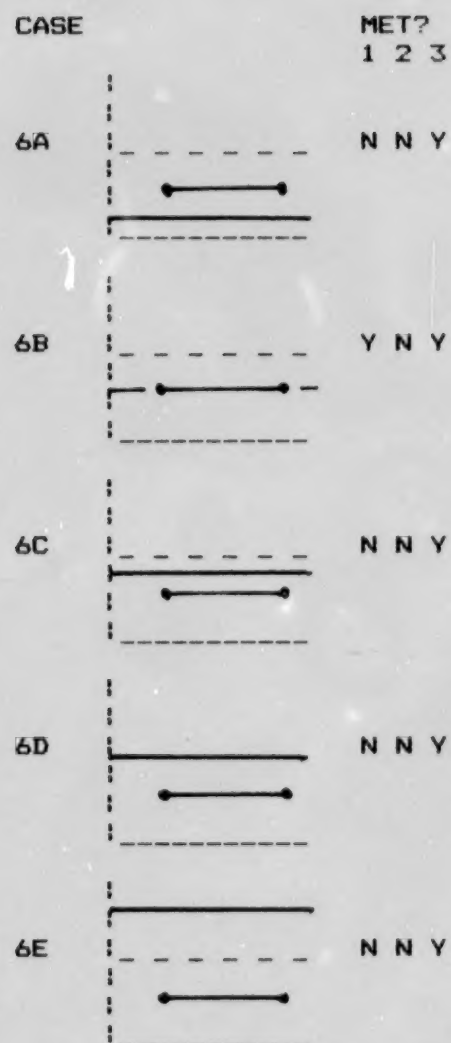
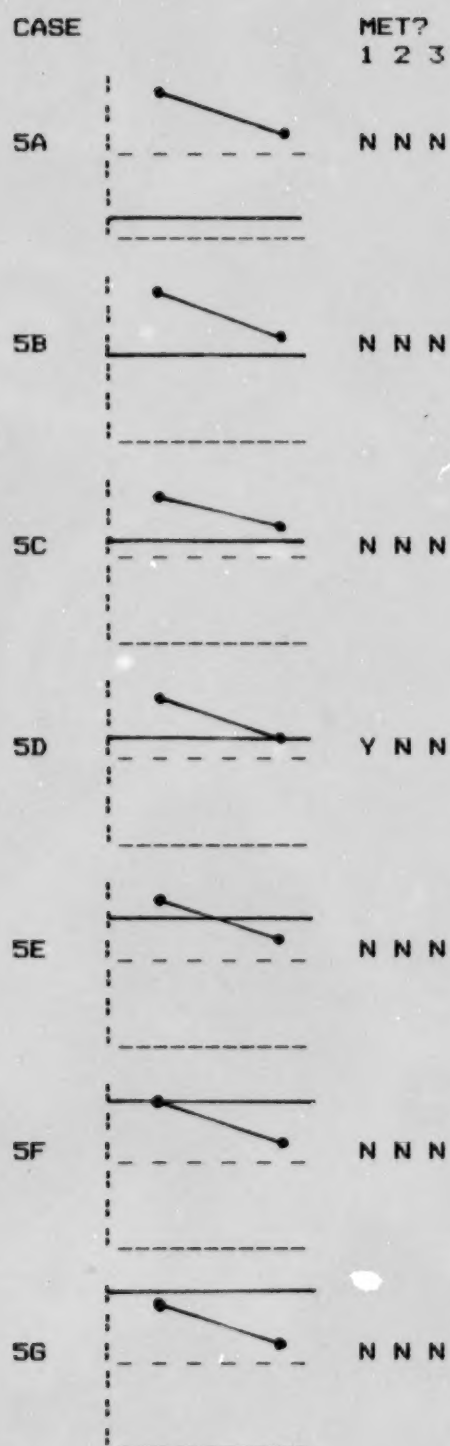


Figure 2. (Continued)

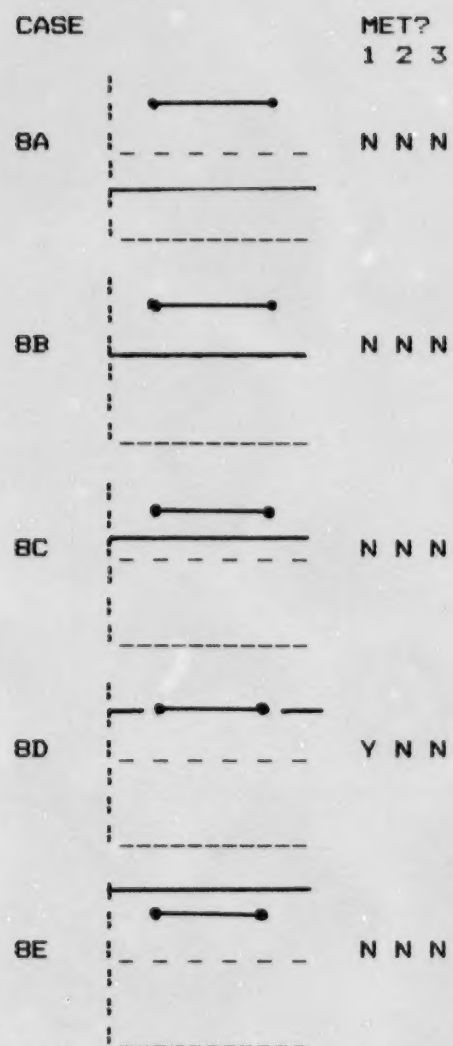
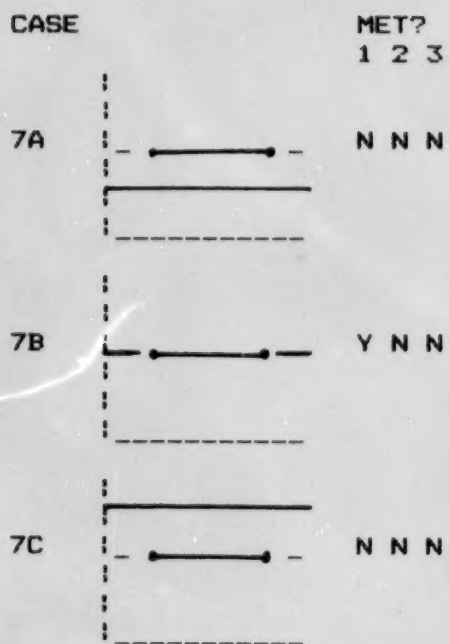
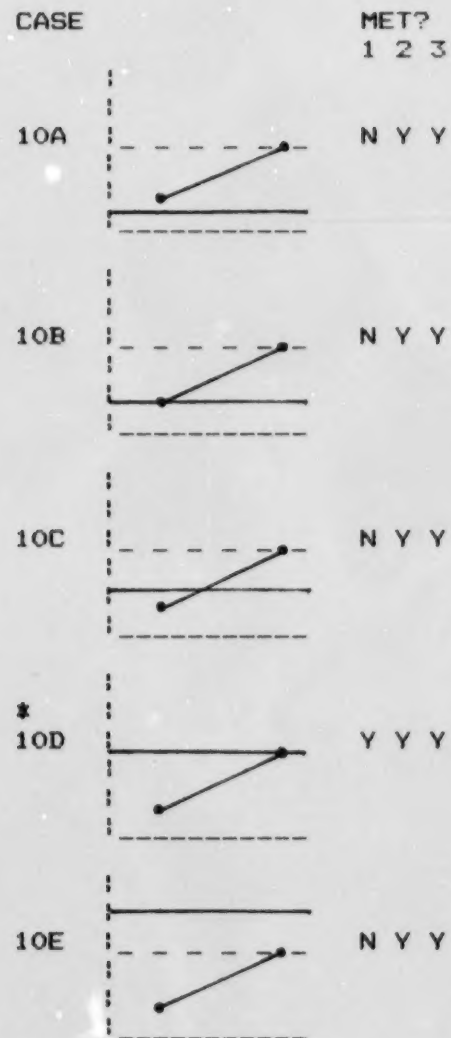
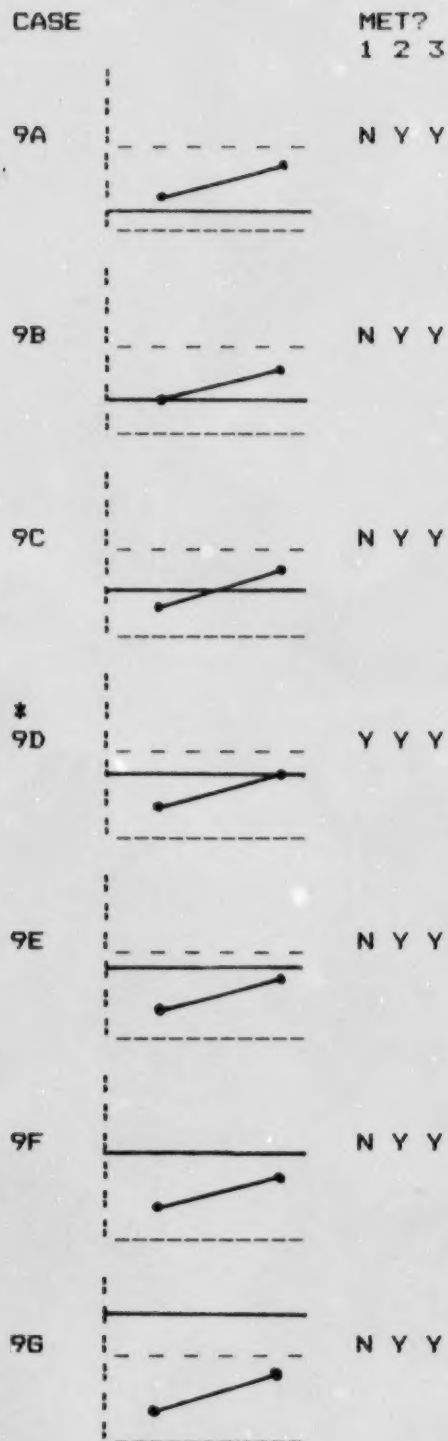


Figure 2. (Continued)



* Represents a genuine need.

Figure 2. (Continued)

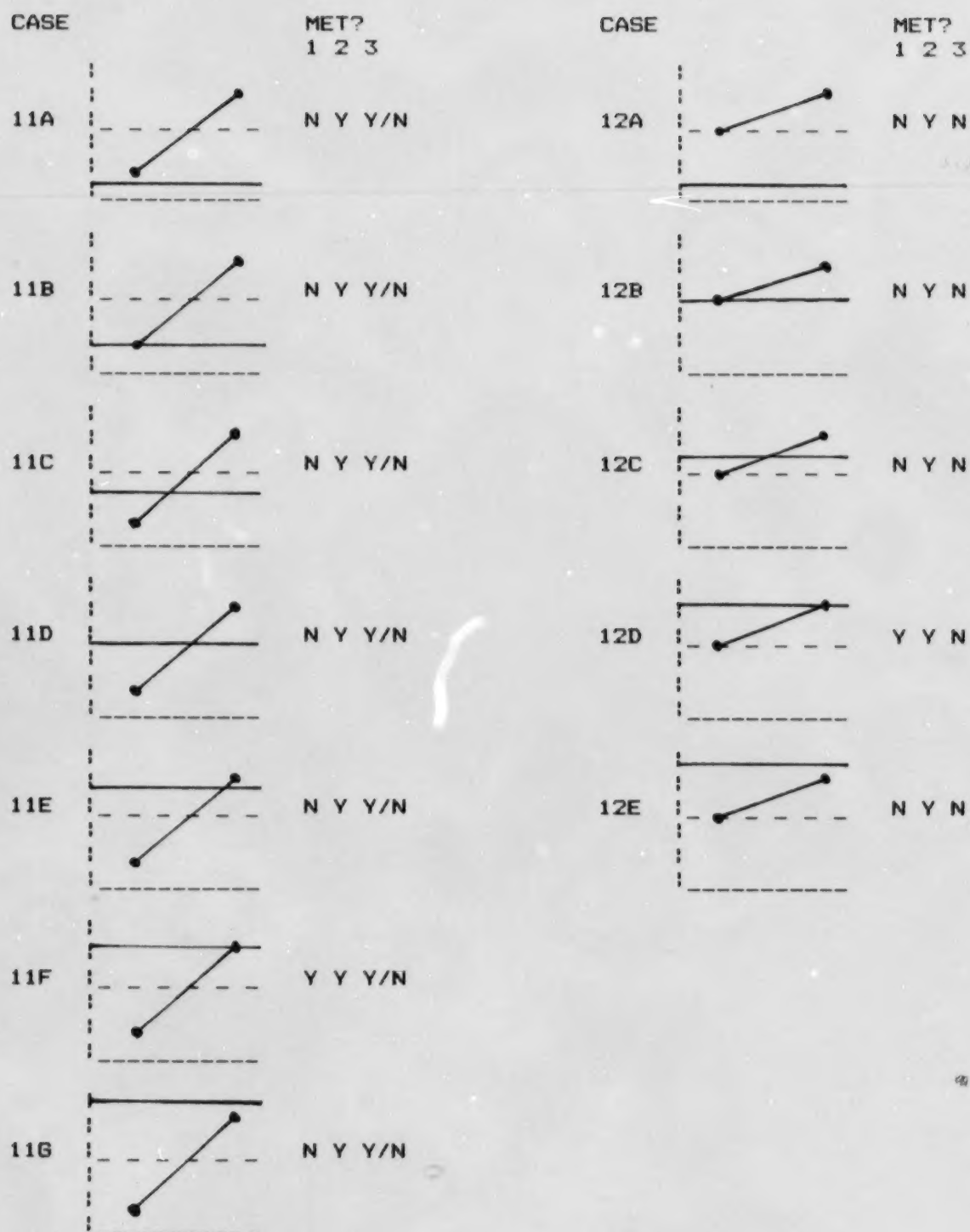


Figure 2. (Continued)

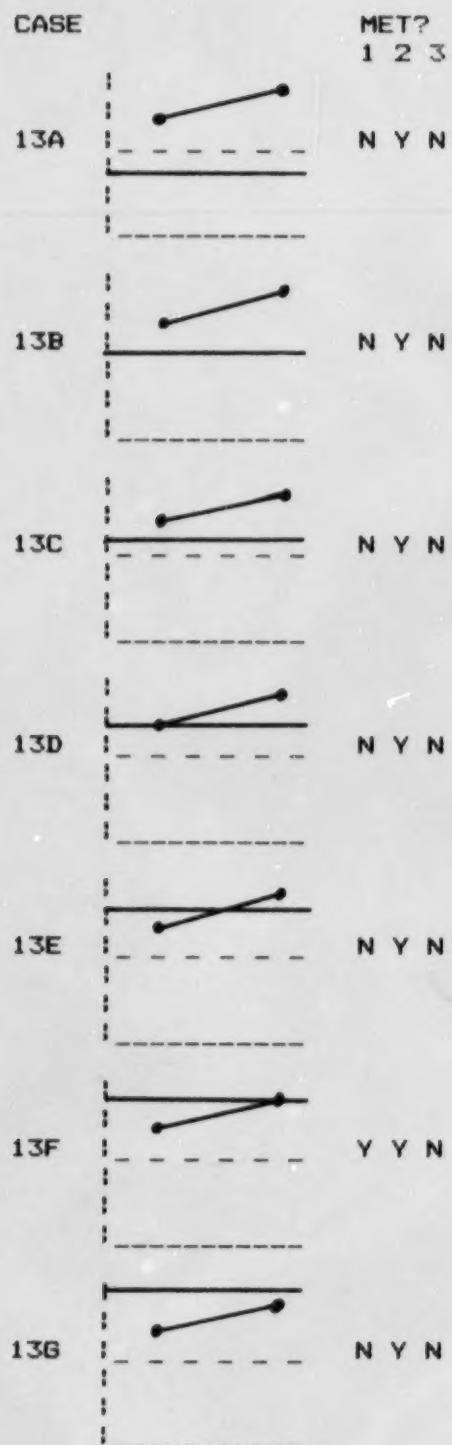


Figure 2. (Continued)

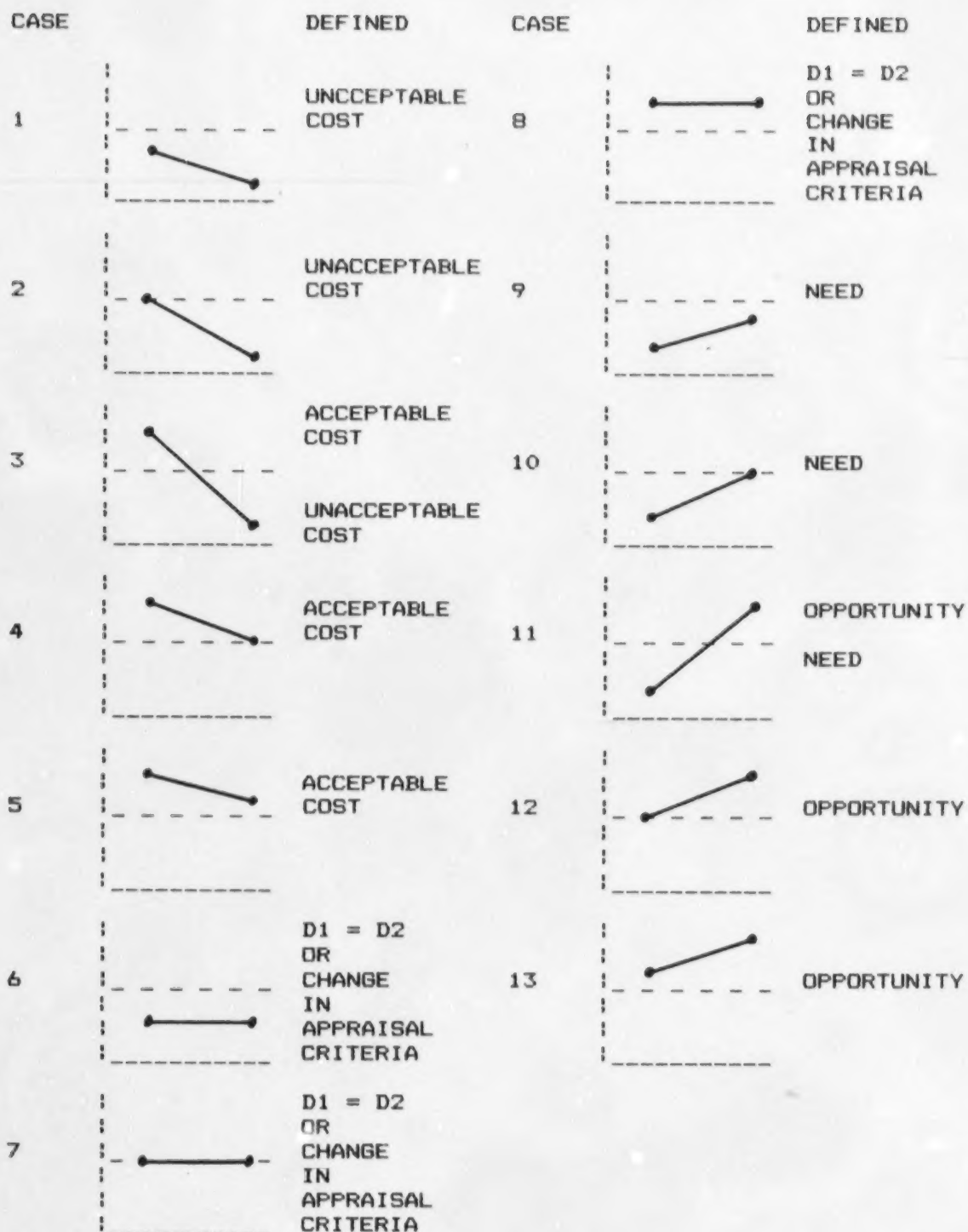


Figure 3. The revised definition of need and related terms applied to thirteen cases. The format for each case is the same as in Figure 1, excluding target (T).

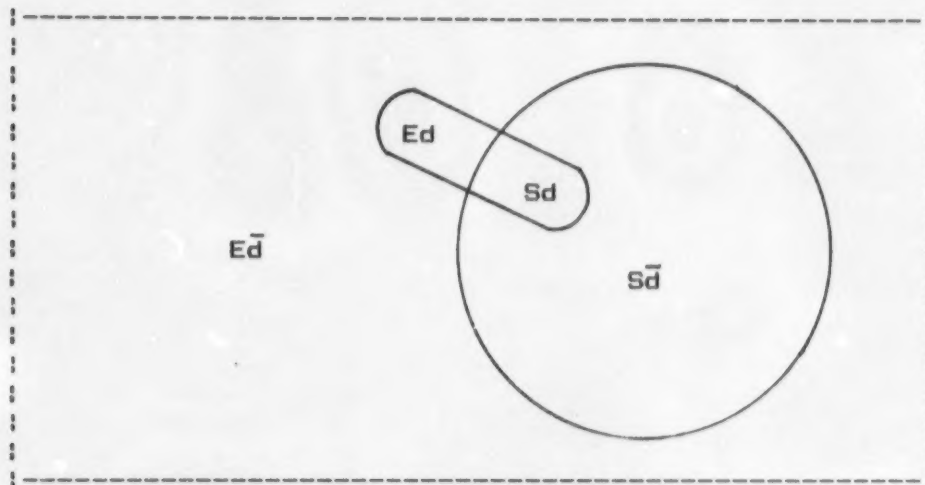


Figure 4. The field, where: S_d = a specified domain within a system; $\bar{S}_d$ = the remainder of the system; E_d = a specified domain within the environment; and $\bar{E}_d$ = the remainder of the environment.